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more and more come to be regarded as a branch of physiology proper. The theory of representative particles must be relegated to the class of formal hypotheses whose usefulness is largely outlived; and while it may still play a part in speculations on heredity, the author believes that it will come to be generally recognized by those who use it as a mere matter of convenience of terminology, and not as an explanation of the phenomena described in its terms.—J. M. C.

The rôle of glucosides.—WEEVERS continues his researches on the glucosides of plants, with investigations of arbutin and salicin, and their allies.¹¹ He reports that both are to be considered as reserve foods, the combination of benzol derivatives with glucose serving to form compounds of low diffusibility, and therefore suitable for the accumulation of sugar in the cells. Arbutin in *Vaccinium Vitis-idaea* is localized in the leaves, and is used in the spring when the shoots develop, being split by an enzyme into glucose and hydrochinon. The latter remains in the leaves and is used again to combine with the glucose formed by photosynthesis, none being free in autumn. *Pirus communis* contains a glucoside which is probably identical with arbutin, and behaves in the same way. In *Salix purpurea* and *Populus monilijera* there appears to be a complex of enzymes, of which one, salicase, splits salicin into saligenol and glucose; another, saligenase, destroys saligenol and produces catechol; and a third breaks up catechol, forming a black amorphous insoluble pigment. This catecholase, however, gets at catechol only on decay of the tissues. All summer, salicin is formed daily in the leaves; nightly it is hydrolyzed and the glucose is carried away to the cortex. When in autumn the salicin content of the cortex approaches that of the leaves, this process stops. Populin is another product common to the two genera, but more variable in behavior. Populase forms catechol from it also.—C. R. B.

Hindi cotton.—COOK¹² has published a statement in reference to Hindi cotton, the interest of which extends beyond the immediate cultural problem. The name is applied in Egypt to an undesirable type of cotton that injures the high-grade varieties by infesting them with hybrids. The introduction of Egyptian cotton into the United States has introduced also the problem of Hindi cotton. There has been much speculation as to the nature and origin of this pernicious type, the name having suggested an origin from India. Experiments with Egyptian cotton in Arizona resulted in the appearance of the so-called "Hindi" variations, and comparison with other types show that Hindi cotton is of American origin. It is not identical with any of the upland varieties of the United States, but is to be associated with upland types indigenous in Mexico and Central America. Egyptian and other Sea Island types also have originated in tropical America, and the author concludes that "it becomes possible to view the Hindi variants as ex-

¹¹ WEEVERS, TH., Die physiologische Bedeutung einiger Glycoside. (Fortsetzung.) Recueil Trav. Bot. Néerl. 7:1-62. 1910.

¹² COOK, O. F., Origin of the Hindi cotton. Circ. 42, Bur. Pl. Ind., U. S. Depart. Agric. pp. 12. figs. 2. 1909.